

# SSG

## Guided Compact Cylinder

ø12, ø16, ø20, ø25, ø32, ø40, ø50  
ø63, ø80, ø100



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Space-Saving Type

Space-Saving Type

SSD2

SSG

SSD

CAT

MDC2

SMG

MSD

FC□

Cylinder Switch

Ending

Space-Saving Type

SSD2

SSG

SSD

CAT

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MSD

FC□

Cylinder Switch

Ending

## Achieves both space saving and non-rotation

Eliminates the hassle of design and assembly! Direct load mounting possible! SSG series, equipped with guide rods and plates on the Compact Cylinder SSD series

Compared to the Compact Cylinder non-rotating type (SSD-M), the non-rotation accuracy is reduced to 1/8 for the same bore size. Also supports rotational torque on the rod. Compared to the guided cylinder (STG-M), the volume of the tube part is 44%, and the occupied area when mounting on the head side is 46%. It is a space-saving non-rotating cylinder.

### Equipped with guide rods

Equipped with guide rods on the SSD series, improving lateral load resistance and non-rotation performance.

Guide rod



### Equipped with a user-friendly plate

Equipped with a user-friendly plate on the Compact Cylinder. Eliminates the hassle of design and assembly.

Plate



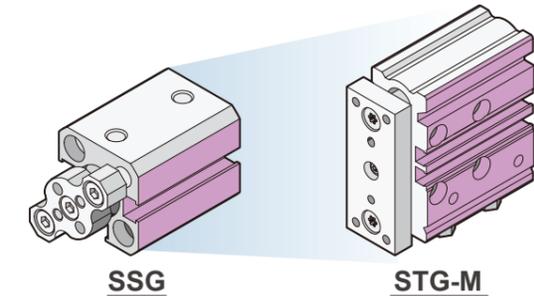
## Compact and space-saving

For the same bore and stroke, compared to the guided cylinder (STG-M), the volume of the tube part and the occupied area when mounting on the head side are about half the size or less, saving space.

Model No.	Bore Size	Tube part volume (cm <sup>3</sup> )	Occupied area when mounting on head side (cm <sup>2</sup> )
SSG	ø12 to ø100	<b>265.3</b>	<b>29.64</b>
STG-M		609.1	64.8

\*Comparison of each model ø40, stroke 50 mm.

### Compared to guided cylinder (STG-M)



## Improved non-rotation accuracy

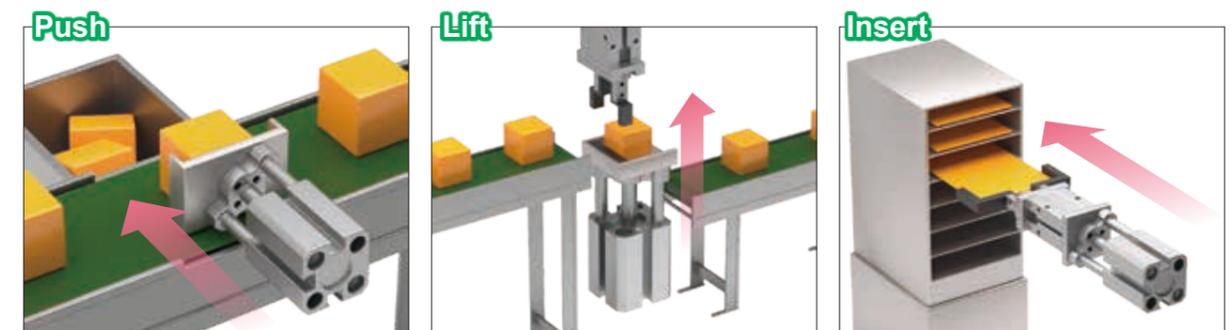
Compared to the Compact Cylinder non-rotating type (SSD2-M), the non-rotation accuracy is reduced to 1/8 for the same bore size, and it also supports rotational torque on the rod.

Model No.	Bore Size	Non-rotation accuracy	Allowable rotational torque
SSG	<b>ø12 to ø100</b>	<b>±0.1°</b>	<b>0.57 N·m</b>
SSD2-M	ø12 to ø63	±0.8°	Rotational torque not allowed

\*Comparison of each model ø40, stroke 50 mm.

## Application Examples

With a firm non-rotation mechanism, it accurately performs actions such as "pushing," "lifting," and "inserting."



## SSG Series Product System

Model variations	Bore size (mm)	Stroke (mm)													
		5	10	15	20	25	30	35	40	45	50	75	100		
Double acting/ single rod With Switch 2-color LED/ Off-delay/ With T1 switch	ø12/ø16	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	ø20/ø25	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	ø32/ø40	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	ø50/ø63/ø80/ø100	●	●	●	●	●	●	●	●	●	●	●	●	●	●

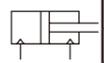
## Mounting compatibility

Mounting pitch compatibility with the Compact Cylinder SSD series. Smooth replacement is possible. Also, a wide range of bore sizes from ø12 to ø100 is available.

## Cylinder switch grooves on 4 surfaces (ø25 to ø100)

Cylinder switches can now be mounted on the same surface as the piping port, improving visibility and maintainability.

●: Standard, ◎: Option, ■: Not manufacturable

Variation	Model No. Circuit Diagram Symbol	Bore Size (mm)	Stroke (mm)											Max. Stroke (mm)	Min. Stroke (mm)	Switch	Page
			5	10	15	20	25	30	35	40	45	50	75				
Double Acting, Single Rod Type with Switch	SSG 	ø12, ø16	●	●	●	●	●	●	■	■	■	■	■	30	1	◎	334
		ø20, ø25	●	●	●	●	●	●	●	●	●	●	■	50			
		ø32, ø40	●	●	●	●	●	●	●	●	●	●	●	●			
2-Color Display, Off-Delay Type with T1 Switch	SSG-L1	ø50, ø63, ø80, ø100	■	●	●	●	●	●	●	●	●	●	●	100			

Space-Saving Type  
SSD2  
SSG  
SSD  
CAT  
MDC2  
SMG  
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FC□

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Cylinder Switch  
Ending

Cylinder Switch  
Ending



Specifications

Item		SSG									
Bore Size	mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type									
Operating Fluid		Compressed Air									
Max. working pressure	MPa	1.0									
Min. Operating Pressure	MPa	0.15					0.1				
Proof Pressure	MPa	1.6									
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)									
Port Size		M5			Rc1/8 *1			Rc1/4		Rc3/8	
Stroke tolerance	Without Cushion										
	With Rubber Cushion	+1.0 0									
Operating Piston Speed	mm/s	50 to 500					50 to 300				
Cushion		No cushion/rubber cushion selectable									
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)									
Allowable Absorbed Energy J	Without Cushion	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56
	With Rubber Cushion	0.03	0.05	0.10	0.16		0.44	0.75	0.78	2.51	3.92

\*1: For ø32 without switch, 5 stroke, the port size will be M5.

Stroke

Stroke (mm)	Bore size (ø)									
	12	16	20	25	32	40	50	63	80	100
5	●	●	●	●	●	●				
10	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	●	●	●	●	●	●
20	●	●	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●	●	●
30	●	●	●	●	●	●	●	●	●	●
35			●	●	●	●	●	●	●	●
40			●	●	●	●	●	●	●	●
45			●	●	●	●	●	●	●	●
50			●	●	●	●	●	●	●	●
75				●	●	●	●	●	●	●
100					●	●	●	●	●	●
Min. Stroke	1									
Max. Stroke	30		50			100				

\*1: For intermediate stroke, can be manufactured in 1 mm increments. The overall length dimension for intermediate stroke is the same as the standard stroke above it.

\*2: For with switch, refer to the table below.

With Switch Minimum Stroke (With 1 or 2 Switches)

Bore Size (mm)	T0H/V, T5H/V	T2WL	Other switches
ø12	10	25	5
ø16			
ø20			
ø25	20		
ø32			
ø40			
ø50	15		
ø63			
ø80			
ø100	10		

\*1: Cannot be manufactured for less than 10 mm with 2-color indicator switch.

Cylinder Weight Table (Weight with switch is when 2 cylinder switches are included)

● Without Switch (Unit: g)

Stroke (mm) / Bore size (mm)	5	10	15	20	25	30	35	40	45	50	75	100
ø12	49	58	67	76	85	95	-	-	-	-	-	-
ø16	61	74	86	99	111	124	-	-	-	-	-	-
ø20	90	105	120	135	150	165	179	194	209	224	-	-
ø25	117	135	153	171	189	207	225	243	261	279	-	-
ø32	170	194	218	242	266	290	314	338	362	386	576	740
ø40	245	274	303	331	360	389	418	446	475	504	742	934
ø50	-	464	510	556	603	649	695	741	787	833	1206	1488
ø63	-	738	802	866	930	994	1058	1122	1185	1249	1794	2168
ø80	-	1336	1434	1533	1632	1730	1829	1928	2026	2125	2971	3525
ø100	-	2028	2154	2279	2405	2531	2657	2782	2908	3034	4163	4859

● With Switch

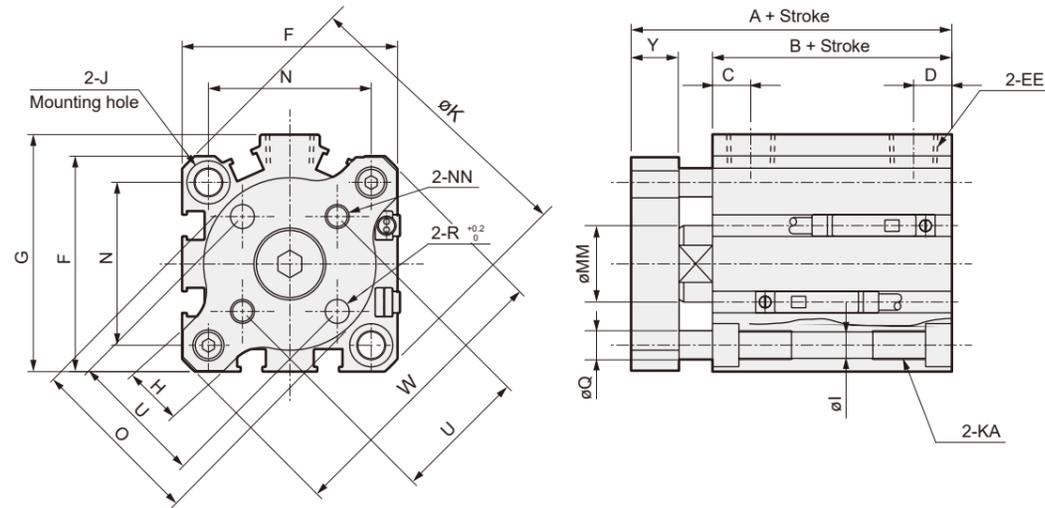
Stroke (mm) / Bore size (mm)	5	10	15	20	25	30	35	40	45	50	75	100
ø12	92	101	110	119	127	136	-	-	-	-	-	-
ø16	107	119	132	144	156	169	-	-	-	-	-	-
ø20	155	173	190	208	226	243	261	279	296	314	-	-
ø25	208	226	244	262	280	298	316	334	352	370	-	-
ø32	284	308	332	356	380	404	428	452	476	500	620	740
ø40	388	417	446	474	503	532	561	589	618	647	791	934
ø50	-	658	704	750	797	843	889	935	981	1027	1257	1488
ø63	-	1017	1081	1145	1209	1273	1337	1401	1464	1528	1848	2168
ø80	-	1749	1847	1946	2045	2143	2242	2341	2439	2538	3031	3525
ø100	-	2595	2721	2846	2972	3098	3224	3349	3475	3601	4230	4859

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø12	Push	-	17.0	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02×10 <sup>2</sup>	1.13×10 <sup>2</sup>
	Pull	-	12.7	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
ø16	Push	-	30.2	40.2	60.3	80.4	1.01×10 <sup>2</sup>	1.21×10 <sup>2</sup>	1.41×10 <sup>2</sup>	1.61×10 <sup>2</sup>	1.81×10 <sup>2</sup>	2.01×10 <sup>2</sup>
	Pull	-	22.6	30.2	45.2	60.3	75.4	90.5	1.06×10 <sup>2</sup>	1.21×10 <sup>2</sup>	1.36×10 <sup>2</sup>	1.51×10 <sup>2</sup>
ø20	Push	-	47.1	62.8	94.2	1.26×10 <sup>2</sup>	1.57×10 <sup>2</sup>	1.88×10 <sup>2</sup>	2.20×10 <sup>2</sup>	2.51×10 <sup>2</sup>	2.83×10 <sup>2</sup>	3.14×10 <sup>2</sup>
	Pull	-	35.3	47.1	70.7	94.2	1.18×10 <sup>2</sup>	1.41×10 <sup>2</sup>	1.65×10 <sup>2</sup>	1.88×10 <sup>2</sup>	2.12×10 <sup>2</sup>	2.36×10 <sup>2</sup>
ø25	Push	-	73.6	98.2	1.47×10 <sup>2</sup>	1.96×10 <sup>2</sup>	2.45×10 <sup>2</sup>	2.95×10 <sup>2</sup>	3.44×10 <sup>2</sup>	3.93×10 <sup>2</sup>	4.42×10 <sup>2</sup>	4.91×10 <sup>2</sup>
	Pull	-	56.7	75.6	1.13×10 <sup>2</sup>	1.51×10 <sup>2</sup>	1.89×10 <sup>2</sup>	2.27×10 <sup>2</sup>	2.64×10 <sup>2</sup>	3.02×10 <sup>2</sup>	3.40×10 <sup>2</sup>	3.78×10 <sup>2</sup>
ø32	Push	80.4	1.21×10 <sup>2</sup>	1.61×10 <sup>2</sup>	2.41×10 <sup>2</sup>	3.22×10 <sup>2</sup>	4.02×10 <sup>2</sup>	4.83×10 <sup>2</sup>	5.63×10 <sup>2</sup>	6.43×10 <sup>2</sup>	7.24×10 <sup>2</sup>	8.04×10 <sup>2</sup>
	Pull	60.3	90.5	1.21×10 <sup>2</sup>	1.81×10 <sup>2</sup>	2.41×10 <sup>2</sup>	3.02×10 <sup>2</sup>	3.62×10 <sup>2</sup>	4.22×10 <sup>2</sup>	4.83×10 <sup>2</sup>	5.43×10 <sup>2</sup>	6.03×10 <sup>2</sup>
ø40	Push	1.26×10 <sup>2</sup>	1.88×10 <sup>2</sup>	2.51×10 <sup>2</sup>	3.77×10 <sup>2</sup>	5.03×10 <sup>2</sup>	6.28×10 <sup>2</sup>	7.54×10 <sup>2</sup>	8.80×10 <sup>2</sup>	1.01×10 <sup>3</sup>	1.13×10 <sup>3</sup>	1.26×10 <sup>3</sup>
	Pull	1.06×10 <sup>2</sup>	1.58×10 <sup>2</sup>	2.11×10 <sup>2</sup>	3.17×10 <sup>2</sup>	4.22×10 <sup>2</sup>	5.28×10 <sup>2</sup>	6.33×10 <sup>2</sup>	7.39×10 <sup>2</sup>	8.44×10 <sup>2</sup>	9.50×10 <sup>2</sup>	1.06×10 <sup>3</sup>
ø50	Push	1.96×10 <sup>2</sup>	2.95×10 <sup>2</sup>	3.93×10 <sup>2</sup>	5.89×10 <sup>2</sup>	7.85×10 <sup>2</sup>	9.82×10 <sup>2</sup>	1.18×10 <sup>3</sup>	1.37×10 <sup>3</sup>	1.57×10 <sup>3</sup>	1.77×10 <sup>3</sup>	1.96×10 <sup>3</sup>
	Pull	1.65×10 <sup>2</sup>	2.47×10 <sup>2</sup>	3.30×10 <sup>2</sup>	4.95×10 <sup>2</sup>	6.60×10 <sup>2</sup>	8.25×10 <sup>2</sup>	9.90×10 <sup>2</sup>	1.15×10 <sup>3</sup>	1.32×10 <sup>3</sup>	1.48×10 <sup>3</sup>	1.65×10 <sup>3</sup>
ø63	Push	3.12×10 <sup>2</sup>	4.68×10 <sup>2</sup>	6.23×10 <sup>2</sup>	9.35×10 <sup>2</sup>	1.25×10 <sup>3</sup>	1.56×10 <sup>3</sup>	1.87×10 <sup>3</sup>	2.18×10 <sup>3</sup>	2.49×10 <sup>3</sup>	2.81×10 <sup>3</sup>	3.12×10 <sup>3</sup>
	Pull	2.80×10 <sup>2</sup>	4.20×10 <sup>2</sup>	5.61×10 <sup>2</sup>	8.41×10 <sup>2</sup>	1.12×10 <sup>3</sup>	1.40×10 <sup>3</sup>	1.68×10 <sup>3</sup>	1.96×10 <sup>3</sup>	2.24×10 <sup>3</sup>	2.52×10 <sup>3</sup>	2.80×10 <sup>3</sup>
ø80	Push	5.03×10 <sup>2</sup>	7.54×10 <sup>2</sup>	1.01×10 <sup>3</sup>	1.51×10 <sup>3</sup>	2.01×10 <sup>3</sup>	2.51×10 <sup>3</sup>	3.02×10 <sup>3</sup>	3.52×10 <sup>3</sup>	4.02×10 <sup>3</sup>	4.52×10 <sup>3</sup>	5.03×10 <sup>3</sup>
	Pull	4.54×10 <sup>2</sup>	6.80×10 <sup>2</sup>	9.07×10 <sup>2</sup>	1.36×10 <sup>3</sup>	1.81×10 <sup>3</sup>	2.27×10 <sup>3</sup>	2.72×10 <sup>3</sup>	3.17×10 <sup>3</sup>	3.63×10 <sup>3</sup>	4.08×10 <sup>3</sup>	4.54×10 <sup>3</sup>
ø100	Push	7.85×10 <sup>2</sup>	1.18×10 <sup>3</sup>	1.57×10 <sup>3</sup>	2.36×10 <sup>3</sup>	3.14×10 <sup>3</sup>	3.93×10 <sup>3</sup>	4.71×10 <sup>3</sup>	5.50×10 <sup>3</sup>	6.28×10 <sup>3</sup>	7.07×10 <sup>3</sup>	7.85×10 <sup>3</sup>
	Pull	7.15×10 <sup>2</sup>	1.07×10 <sup>3</sup>	1.43×10 <sup>3</sup>	2.14×10 <sup>3</sup>	2.86×10 <sup>3</sup>	3.57×10 <sup>3</sup>	4.29×10 <sup>3</sup>	5.00×10 <sup>3</sup>	5.72×10 <sup>3</sup>	6.43×10 <sup>3</sup>	7.15×10 <sup>3</sup>

Outline Dimension Drawing



- Precautions regarding switch mounting grooves
- \*1: For bore sizes  $\phi 12$  to  $\phi 20$ , there are no switch grooves on the piping port surface.
- \*2: For bore sizes  $\phi 12$ ,  $16$ , the switch grooves are only in 1 row on each surface.
- \*3: For bore size  $\phi 25$ , only F-type switches can be mounted on the piping port surface.

Code	Dimension with switch		Dimension without switch		Common dimension							
	Bore Size	A *1, *5	B *1, *5	A *1, *4	B *1, *4	C *3	D *3	EE	F	G	H	I
$\phi 12$	$\phi 12$	31.5 (36.5)	22 (27)	26.5	17	5.5	5.5	M5	25	-	8.5	3.5
$\phi 16$	$\phi 16$	31.5 (36.5)	22 (27)	26.5	17	5.5	5.5	M5	29	-	9	3.5
$\phi 20$	$\phi 20$	42	29.5	32	19.5	8	5.5	M5	36	-	10	5.5
$\phi 25$	$\phi 25$	45.5	32.5	35.5	22.5	11	6	M5	40	-	11	5.5
$\phi 32$	$\phi 32$	50	33	40 (50)	23 (33)	8 (10)	8 (5.5)	Rc1/8 *2	45	49.5	12	5.5
$\phi 40$	$\phi 40$	56.5	39.5	46.5 (56.5)	29.5 (39.5)	12 (11.5)	8.5 (8)	Rc1/8	52	57	12	5.5
$\phi 50$	$\phi 50$	60.5	40.5	50.5 (60.5)	30.5 (40.5)	10.5	10.5	Rc1/4	64	71	15	6.9
$\phi 63$	$\phi 63$	66	46	56 (66)	36 (46)	13	11	Rc1/4	77	84	18	8.7
$\phi 80$	$\phi 80$	77.5	53.5	67.5 (77.5)	43.5 (53.5)	16	13	Rc3/8	98	104	22	10.5
$\phi 100$	$\phi 100$	89	63	79 (89)	53 (63)	23	15	Rc3/8	117	123.5	22	10.5

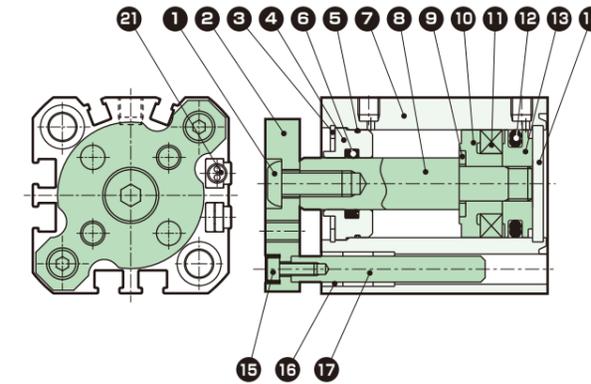
Code	Common dimension												
	Bore Size	J	K	KA	MM	N	NN	O	Q	R	U	Y	W
$\phi 12$	$\phi 12$	6.5 Counterbore depth 3.5	32	M4 depth 7	6	15.5	M3	15	5	3	10 $\pm$ 0.1	6	31
$\phi 16$	$\phi 16$	6.5 Counterbore depth 3.5	38	M4 depth 7	8	20	M3	19	5	3	14 $\pm$ 0.1	6	37
$\phi 20$	$\phi 20$	9 Counterbore depth 5.5	47	M6 depth 11	10	25.5	M4	26	6	4	17 $\pm$ 0.1	8	46
$\phi 25$	$\phi 25$	9 Counterbore depth 5.5	51	M6 depth 11	12	28	M5	30	6	5	22 $\pm$ 0.1	8	50
$\phi 32$	$\phi 32$	9 Counterbore depth 5.5	60	M6 depth 11	16	34	M5	36	6	5	28 $\pm$ 0.2	10	59
$\phi 40$	$\phi 40$	9 Counterbore depth 5.5	69	M6 depth 11	16	40	M5	42	6	5	33 $\pm$ 0.2	10	68
$\phi 50$	$\phi 50$	11 Counterbore Depth 6.5	86	M8 depth 13	20	50	M6	54	8	6	42 $\pm$ 0.2	12	85
$\phi 63$	$\phi 63$	14 Counterbore depth 9	103	M10 depth 25	20	60	M6	68	12	6	50 $\pm$ 0.2	12	102
$\phi 80$	$\phi 80$	17.5 Counterbore depth 11	132	M12 depth 28	25	77	M8	88	14	8	65 $\pm$ 0.2	14	131
$\phi 100$	$\phi 100$	17.5 Counterbore depth 11	156	M12 depth 28	30	94	M10	106	14	10	80 $\pm$ 0.2	16	155

- \*1: When calculating A + Stroke and B + Stroke dimensions for intermediate strokes, do not enter the intermediate stroke value for the stroke; instead, enter the value of the standard stroke above it.  
(Example) For an intermediate stroke of 7 mm, enter the standard stroke of 10 mm for calculation.
- \*2: For  $\phi 32$  without switch, 5 stroke, the port size will be M5.
- \*3: Dimensions in ( ) for C and D are values for 5 strokes without switch.
- \*4: Dimensions in ( ) for A and B are values for 75 and 100 strokes.
- \*5: Dimensions in ( ) for A and B are values when equipped with a 2-color indicator switch (L1).
- \*6: For dimensions with each switch, refer to P. 343.

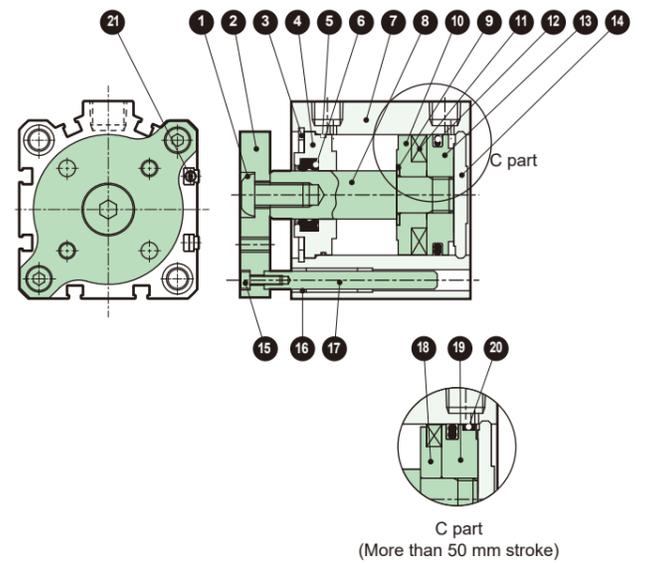
Internal Structure Diagram/Material

Internal Structure Diagram/Material (Bore size:  $\phi 12$  to  $\phi 50$  without Cushion)

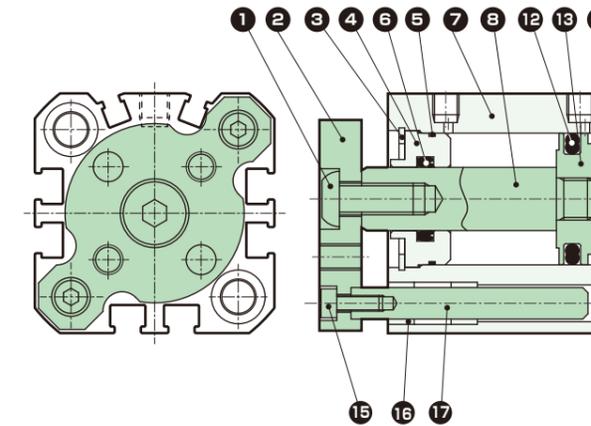
●SSG-L-12 to 25 (double acting with switch)



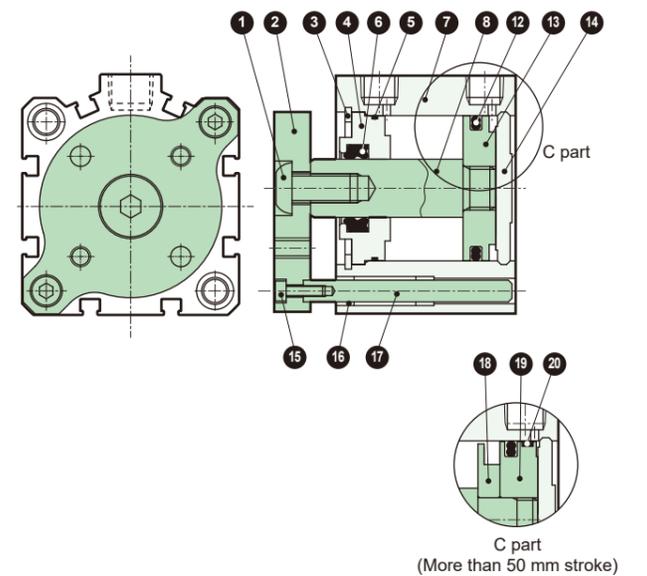
●SSG-L-32 to 50 (double acting with switch)



●SSG-12 to 25 (Double Acting Type)



●SSG-32 to 50 (Double Acting Type)

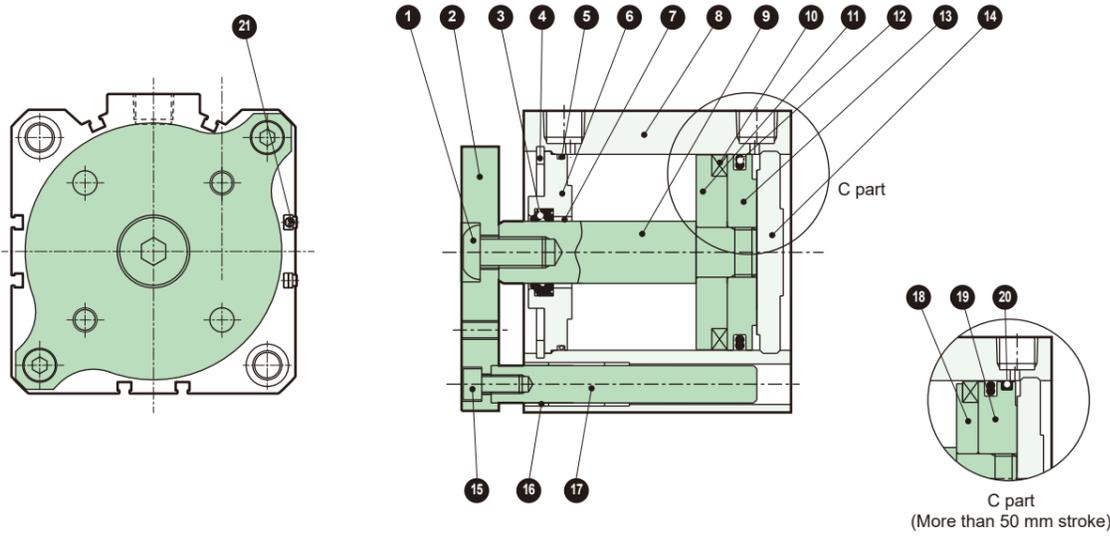


**Do not disassemble**

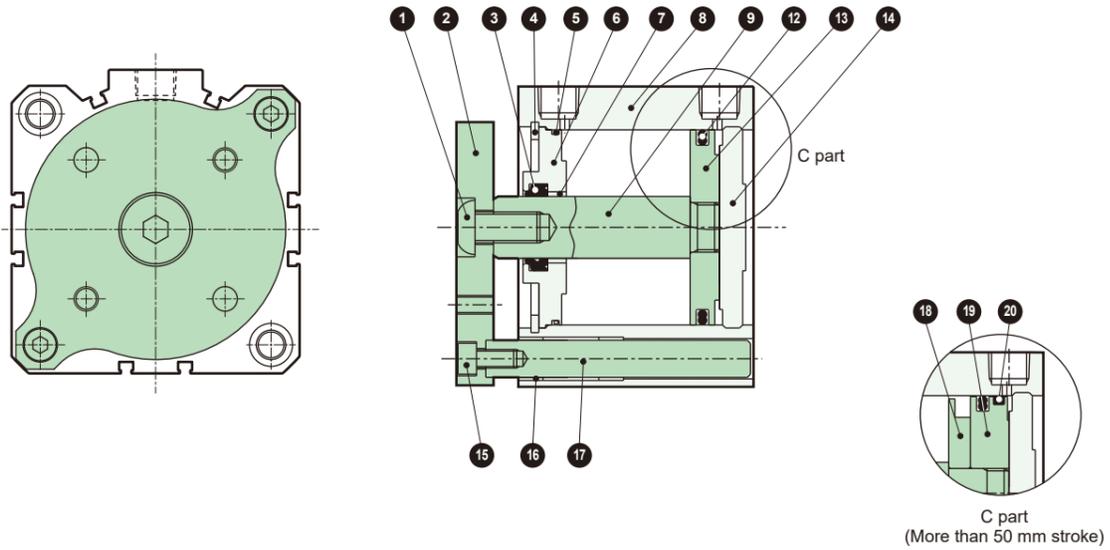
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hex socket bolt ( $\phi 12$ ) Hex socket button head bolt ( $\phi 16$ to $50$ )	Alloy Steel	Zinc Chromate	11	Magnet	Plastic	
				12	Piston Packing	Nitrile Rubber	
2	End plate	Aluminum Alloy	Alumite	13	Piston	Aluminum Alloy	Chromate
3	C-type retaining ring	Steel	Phosphate coating	14	Cover	$\phi 12$ to $\phi 25$ : Stainless steel $\phi 32$ to $\phi 50$ : Aluminum alloy	Alumite
4	Rod Metal	Aluminum Alloy	Alumite				
5	O-ring	Nitrile Rubber		15	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
6	Rod Packing	Nitrile Rubber		16	Metal	Oil-impregnated Bearing Alloy	
7	Cylinder Body	Aluminum Alloy	Hard Anodized	17	Guide rod	Stainless Steel	$\phi 20$ to $\phi 50$ : Industrial chrome plating
8	Piston Rod	$\phi 12$ to $\phi 25$ : Stainless steel $\phi 32$ to $\phi 50$ : Steel	$\phi 16$ to $\phi 50$ : Industrial chrome plating	18	Spacer	Aluminum Alloy	Chromate
19				Piston	Aluminum Alloy	Chromate	
9	Spacer washer	Stainless Steel	$\phi 20$ to $50$ only	20	Wear Ring	Polyacetal	
10	Spacer	$\phi 12$ : Aluminum alloy $\phi 16$ to $\phi 50$ : Special resin	$\phi 12$ : Chromate	With Switch			
				21	Switch		

Internal Structure Diagram/Material (Bore size:  $\phi 63$  to  $\phi 100$  without Cushion)

● SSG-L-63 to 100 (Double Acting Type with Switch)



● SSG-63 to 100 (Double Acting Type)



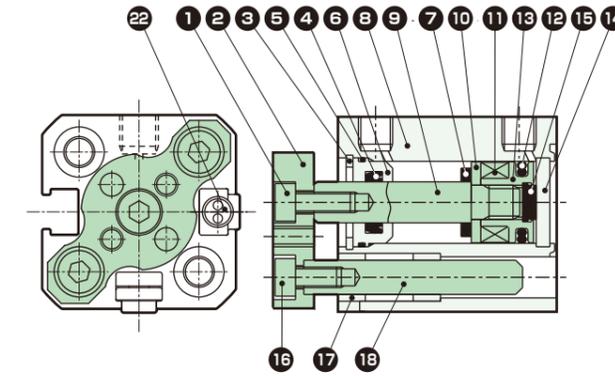
**Do not disassemble**

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hex Socket Button Head Bolt	Alloy Steel	Zinc Chromate	12	Piston Packing	Nitrile Rubber	
2	End plate	Aluminum Alloy	Alumite	13	Piston	Aluminum Alloy	Chromate
3	Rod Packing	Nitrile Rubber		14	Cover	Aluminum Alloy	Alumite
4	C-type retaining ring	Steel	Phosphate coating	15	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
5	O-ring	Nitrile Rubber		16	Metal	Oil-impregnated Bearing Alloy	
6	Rod Metal	Aluminum Alloy	Chromate	17	Guide rod	Steel	Industrial Hard Chrome Plating
7	Bushing	Bearing Alloy		18	Spacer	Aluminum Alloy	Chromate
8	Cylinder Body	Aluminum Alloy	Hard Anodized	19	Piston	Aluminum Alloy	Chromate
9	Piston Rod	Steel	Industrial Hard Chrome Plating	20	Wear Ring	Polyacetal	
10	Magnet	Plastic		With Switch			
11	Spacer	Aluminum Alloy	Chromate	21	Switch		

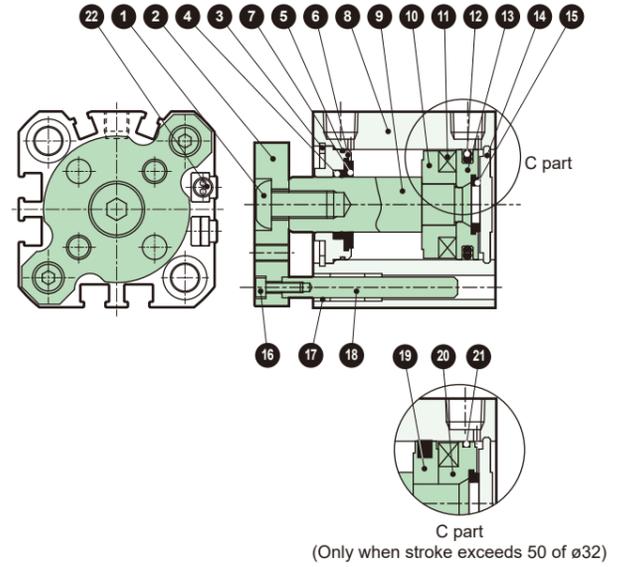
Internal Structure Diagram/Material

Internal Structure Diagram/Material (Bore size:  $\phi 12$  to  $\phi 32$  with Rubber Cushion)

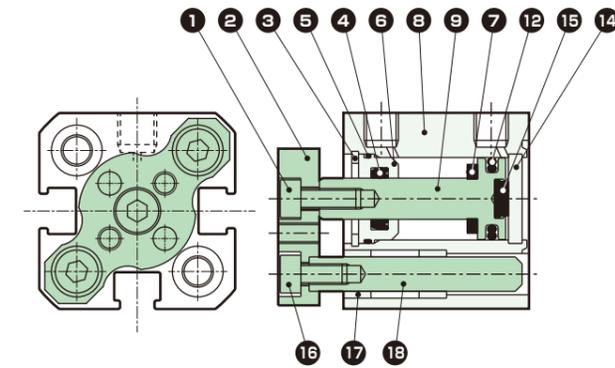
● SSG-L-12D (double acting with switch)



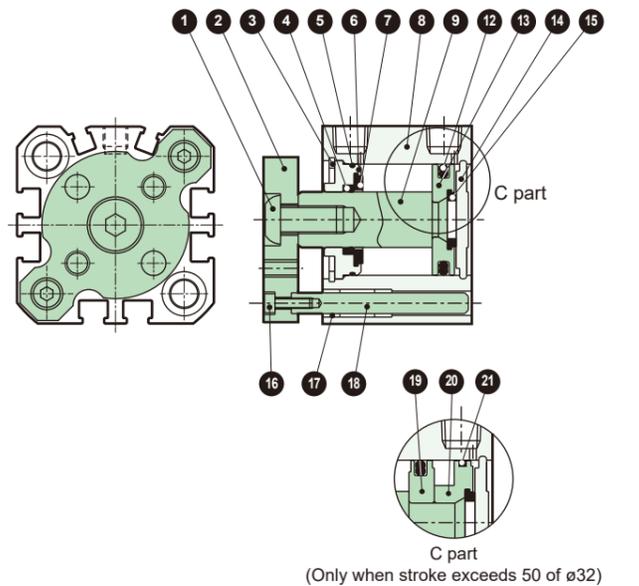
● SSG-L-16D to 32D (double acting with switch)



● SSG-12D (Double Acting Type)



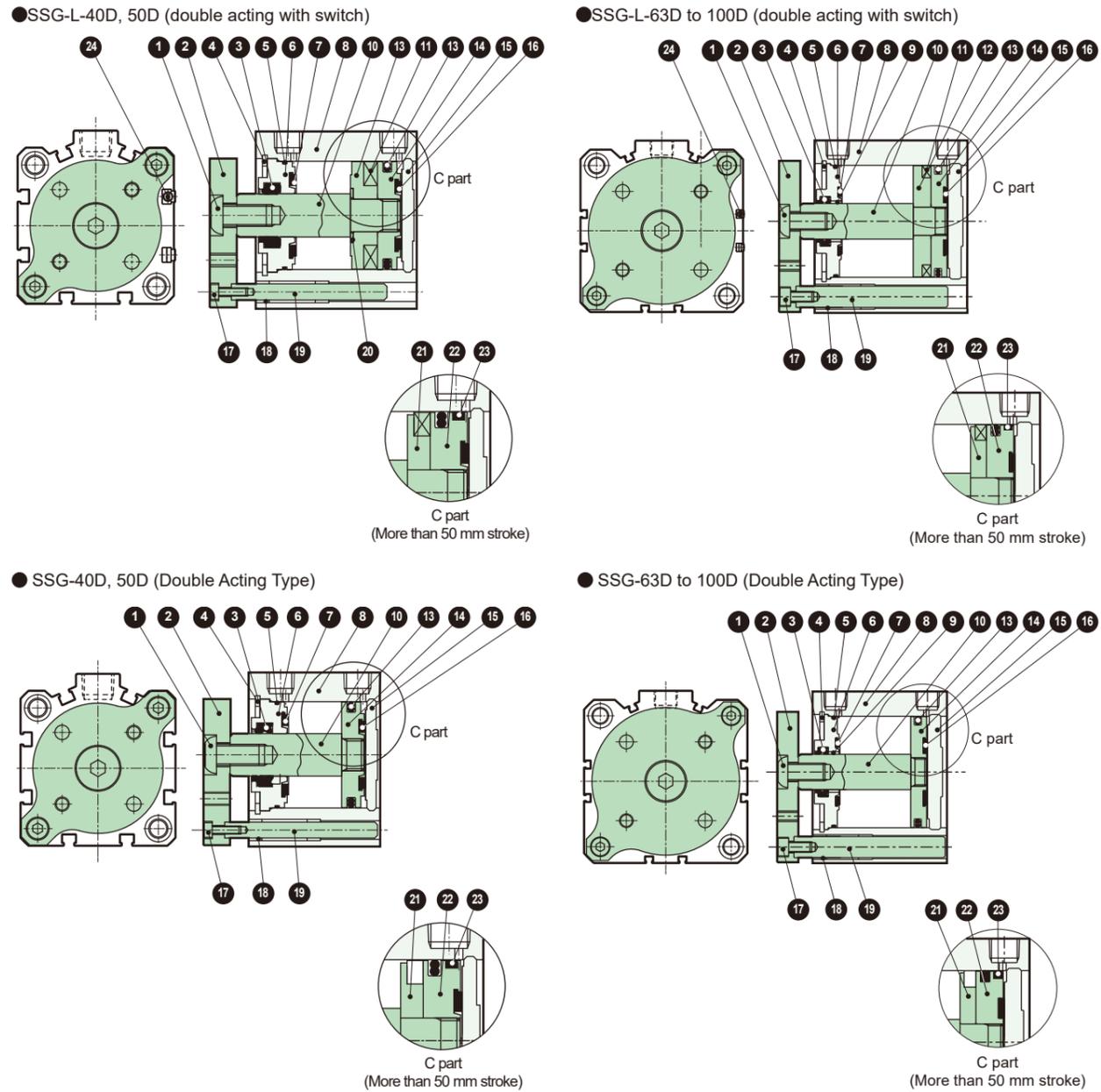
● SSG-16D to 32D (Double Acting Type)



**Do not disassemble**

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hex socket bolt ( $\phi 12$ ) Hex socket button head bolt ( $\phi 16$ to $\phi 32$ )	Alloy Steel	Zinc Chromate	12	Piston Packing	Nitrile Rubber	
2	End plate	Aluminum Alloy	Alumite	13	Piston	Aluminum Alloy	Chromate
3	C-type retaining ring	Steel	Phosphate coating	14	Cover	$\phi 12$ to $\phi 25$ : Stainless steel $\phi 32$ : Aluminum alloy	$\phi 32$ : Alumite
4	Rod Packing	Nitrile Rubber		15	Cushion Rubber	Urethane Rubber	
5	O-ring	Nitrile Rubber		16	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
6	Rod Metal	Aluminum Alloy	Alumite	17	Metal	Oil-impregnated Bearing Alloy	
7	Cushion Rubber	Urethane Rubber		18	Guide rod	Stainless Steel	$\phi 20$ to $\phi 32$ : Industrial chrome plating
8	Cylinder Body	Aluminum Alloy	Hard Anodized	19	Spacer	Aluminum Alloy	Chromate
9	Piston Rod	$\phi 12$ to $\phi 25$ : Stainless steel $\phi 32$ : Steel	$\phi 16$ to $\phi 32$ : Industrial chrome plating	20	Piston	Aluminum Alloy	Chromate
10	Spacer	Aluminum Alloy	Chromate	21	Wear Ring	Polyacetal	
11	Magnet	Plastic		With Switch			
				22	Switch		

Internal Structure Diagram/Material (Bore size:  $\phi 40$  to  $\phi 100$  with Rubber Cushion)

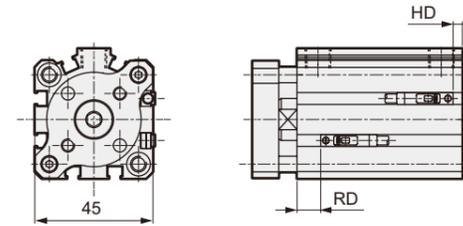


**Do not disassemble**

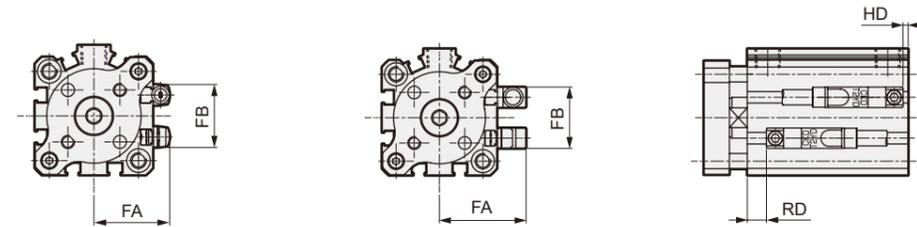
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hex Socket Button Head Bolt	Alloy Steel	Zinc Chromate	14	Piston	Aluminum Alloy	Chromate
2	End plate	Aluminum Alloy	Alumite	15	Cover	Aluminum Alloy	Alumite
3	Rod Packing	Nitrile Rubber		16	Cushion Rubber	Urethane Rubber	
4	C-type retaining ring	Steel	Phosphate coating	17	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
5	O-ring	Nitrile Rubber		18	Metal	Oil-impregnated Bearing Alloy	
6	Rod Metal	Aluminum Alloy	$\phi 40, \phi 50$ : Alumite $\phi 63$ to $\phi 100$ : Chromate	19	Guide rod	$\phi 40, \phi 50$ : Stainless steel $\phi 63$ to $\phi 100$ : Steel	Industrial Hard Chrome Plating
7	Cushion Rubber	Urethane Rubber		20	Spacer washer	Stainless Steel	
8	Cylinder Body	Aluminum Alloy	Hard Anodized	21	Spacer	Aluminum Alloy	Chromate
9	Bushing	Bearing Alloy		22	Piston	Aluminum Alloy	Chromate
10	Piston Rod	Steel	Industrial Hard Chrome Plating	23	Wear Ring	Polyacetal	
11	Magnet	Plastic		With Switch			
12	Spacer	Aluminum Alloy	Chromate	24	Switch		
13	Piston Packing	Nitrile Rubber					

SSG Series Switch Attached Outline Dimension Drawing

- T0H/V, T5H/V, T2H/V, T3H/V, T2HR3/T2VR3, T3PH/V, T2WH/V, T3WH/V, T2WLH/V



- T8H/V, T2JH/V, T1H/V, T2YD, T2YDT



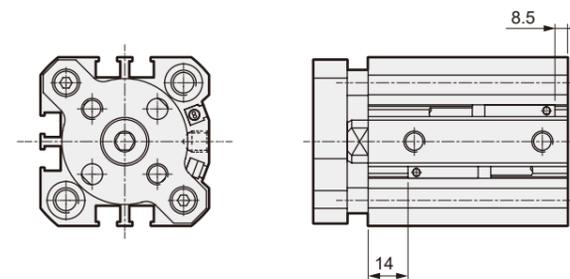
Code	T0, T5, T2, T2HR, T3, T3P				T2W, T3W, T2WL				T8				T2J				T1, T2YD, T2YDT			
	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3	RD *2, *3	HD *2, *3		
$\phi 12$	2.5	0	4	7.5	-	-	-	-	18.8	8	1	4.5	23.8	8	1	4.5				
$\phi 16$	2	0	3.5	7.5	-	-	-	-	20.8	8	0.5	4.5	25.8	8	0.5	4.5				
$\phi 20$	6.5	3	8	4.5	-	-	-	-	24.3	16	5	1.5	29.3	16	5	1.5				
$\phi 25$	9.5	3	11	4.5	-	-	-	-	26.3	17	8	1.5	31.3	17	8	1.5				
$\phi 32$	9 (10.5)	3.5 (2)	10.5 (13)	5 (3.5)	-	-	-	-	28.8	24	7.5 (9)	2 (0.5)	33.8	24	7.5 (9)	2 (0.5)				
$\phi 40$	12 (14.5)	7 (4.5)	13.5 (16)	8.5 (6)	32.3	31	6 (8.5)	1 (0)	32.3	31	10.5 (13)	5.5 (3)	37.3	31	10.5 (13)	5.5 (3)				
$\phi 50$	12.5 (9.5)	7.5 (10.5)	14 (11)	9 (12)	38.3	32	6.5 (3.5)	1.5 (4.5)	38.3	32	11 (8)	6 (9)	43.3	32	11 (8)	6 (9)				
$\phi 63$	13 (10)	12.5 (15.5)	14.5 (11.5)	14 (17)	44.8	32	7 (4)	6.5 (9.5)	44.8	32	11.5 (8.5)	11 (14)	49.8	32	11.5 (8.5)	11 (14)				
$\phi 80$	15.5 (12)	17.5 (21)	17 (13.5)	19 (22.5)	55.3	32	9.5 (6)	11.5 (15)	55.3	32	14 (10.5)	16 (19.5)	60.3	32	14 (10.5)	16 (19.5)				
$\phi 100$	19.5 (16)	23 (26.5)	21 (17.5)	24.5 (28)	64.8	32	13.5 (10)	17 (20.5)	64.8	32	18 (14.5)	21.5 (25)	69.8	32	18 (14.5)	21.5 (25)				

\*1: RD and HD dimensions for 5 strokes differ from these dimensions due to individual adjustment.  
 \*2: Dimensions in ( ) for symbols RD and HD for  $\phi 32$  to  $\phi 100$  are values for 75 and 100 strokes.  
 \*3: For RD and HD dimensions of  $\phi 16$  with rubber cushion, refer to Table 1.

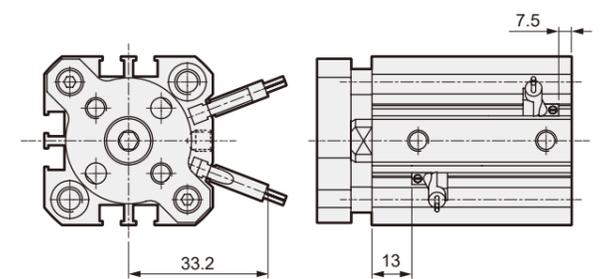
Table 1

	T0, T5, T2, T2HR, T3, T3P		T2W, T3W, T2WL		T2J		T1, T2YD, T2YDT	
	RD	HD	RD	HD	RD	HD	RD	HD
$\phi 16$	3.5	0	5	6	2	3	2	3

- F2H/V, F3H/V, F3PH/V, F2YH/V, F3YH/V



- F2S, F3S



Mounting Bolt Model Number Notation Method

Model No. Notation Method



Mounting bolt size  
("d", "L" refer to the table below)

Note) Shipped as a set of 4, but 2 are used for this product.

How to Read the List



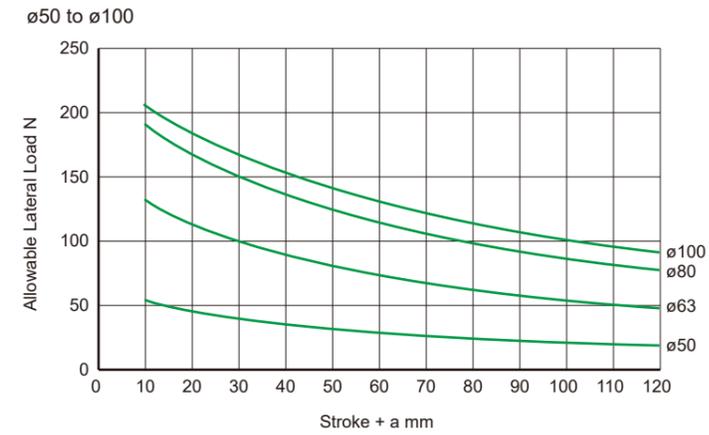
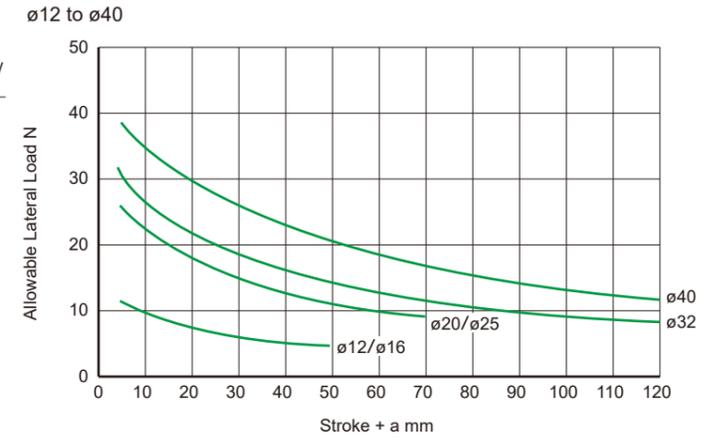
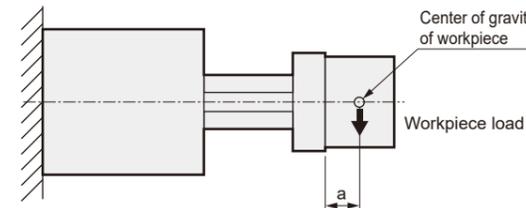
Example) For SSG-L-32D-30...SSD-BOLT-M5X65

Code	Bore	ℓ	d	L		
				50 strokes or less Without Switch	50 strokes or less With Switch	75, 100 strokes
SSD2	ø12·16	6.5	M3	20 + Stroke	25 + Stroke (*1)	
SSG	ø20	6	M5	20 + Stroke	30 + Stroke	
	ø25	8	M5	25 + Stroke	35 + Stroke	
	ø32	7.5	M5	25 + Stroke	35 + Stroke	35 + Stroke
	ø40	6	M5	30 + Stroke	40 + Stroke	40 + Stroke
	ø50	11	M6	35 + Stroke	45 + Stroke	45 + Stroke
	ø63	13	M8	40 + Stroke	50 + Stroke	50 + Stroke
	ø80	17.5	M10	50 + Stroke	60 + Stroke	60 + Stroke
	ø100	18	M10	60 + Stroke	70 + Stroke	70 + Stroke

\*1: For SSG-L1, it will be "30 + Stroke".

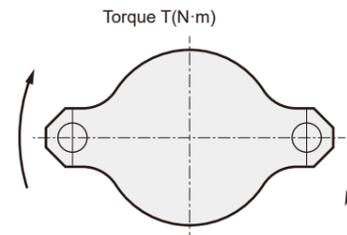
Technical Data

Allowable Lateral Load



The allowable lateral load value is the value when the load acts on the end face of the end plate.  
If the center of gravity of the workpiece included to the end plate is offset, replace the offset amount with stroke for selection.

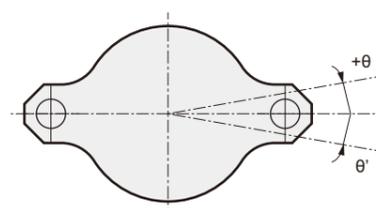
Allowable rotational torque



Unit: N·m

Bore Size (mm)	Stroke							
	5	10	20	30	40	50	75	100
12	0.12	0.10	0.080	0.066				
16	0.16	0.13	0.10	0.085				
20	0.40	0.35	0.28	0.23	0.20	0.17		
25	0.44	0.38	0.31	0.25	0.22	0.19		
32	0.69	0.62	0.51	0.43	0.38	0.33	0.26	0.21
40	1.1	0.99	0.83	0.72	0.63	0.57	0.45	0.37
50		1.9	1.6	1.4	1.2	1.1	0.87	0.73
63		4.3	3.7	3.3	2.9	2.6	2.1	1.8
80		7.9	6.9	6.2	5.6	5.1	4.2	3.6
100		12	11	9.9	9.0	8.3	6.9	5.9

Non-rotation accuracy (Reference value)



Bore size (mm)	Non-rotation Accuracy θ (degrees)
ø12·16	±0.2
ø20, 25, 32, 40	±0.1
ø50, 63, 80, 100	±0.08

(PULL time initial value)  
Note: (Excluding guide rod deflection amount)



# To Use This Product Safely

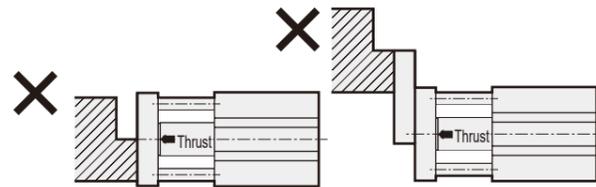
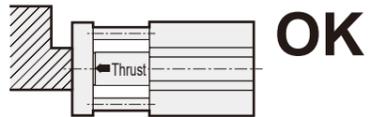
Be sure to read this before use.

For general cylinder information, see Intro 41, and for cylinder switches, see P. 924.

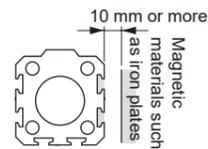
## During Design / Selection

### Caution

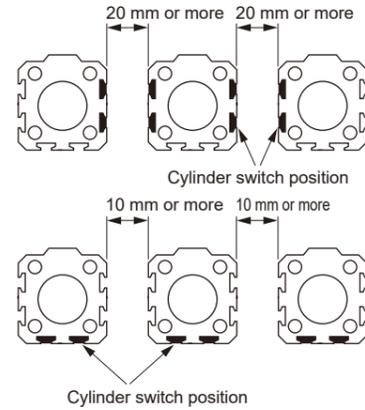
- Use within the allowable load. Exceeding the allowable lateral load or allowable rotational torque may cause damage. Refer to the technical data on P. 345.
- Do not use as a stopper. Use this product for applications such as pushers and lifters where impact lateral loads are not applied.
- When used by pressing in the middle of the stroke, use it so that the thrust acting on the end plate is applied in the axial direction of the piston rod. When pressing in the middle of the stroke, such as with a clamp, thrust acts on the end plate, and pressing at an eccentric position may cause component damage. Use with the axis of the piston rod as shown in the diagram below.



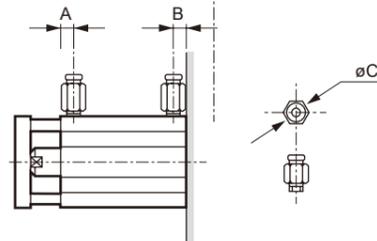
- If there is a magnetic material such as an iron plate near the cylinder switch, it may cause malfunction. Maintain a distance of 10 mm or more from the cylinder surface. (Same for all bore sizes)



- If cylinders are adjacent, it may cause cylinder switch malfunction. Maintain the following distance from the cylinder surface. (Same for all bore sizes)



- Always use a speed controller when piping. There are restrictions on usable piping fittings. Refer to the following and use accordingly.



Item	Port Size	Port position dimension		Usable Fittings	Fitting outer diameter øC	Unusable Fittings
		A	B			
ø12	M5	5.5	5.5	SC3W-M5-4 SC3W-M5-6 GWS4-M5-S GWS4-M5	ø11 or less	GWS6-M5
ø16		8	5.5	GWL4-M5 GWL6-M5		
ø20		11	6			
ø25	Rc1/8 *1	8	8	SC3W-6-4,6,8 GWS4-6 GWS6-6 GWS8-6 GWL4-6 GWL6-6	ø15 or less	GWS10-6 GWL8-6 GWL10-6
ø32		12	8.5			
ø50	Rc1/4	10.5	10.5	SC3W-8-6,8,10 GWS4-8 GWS6-8 GWS10-8 GWL4 to 12-8	ø21 or less	GWS12-8
ø63		13	11			
ø80	Rc3/8	16	13	SC3W-10-6,8,10 GWS6-10 GWS8-10 GWS10-10 GWL6 to 12-10	ø21 or less	-
ø100		23	15			

\*1: For ø32 without switch, 5 strokes, the port diameter will be M5. For port position dimensions, refer to the outline dimension drawing.

## During Use

### Caution

- Do not disassemble this product. If disassembled, performance may no longer be maintained.

- Allowable absorbed energy value  
Use within the range of allowable absorbed energy. If used exceeding the allowable absorbed energy, provide a separate external shock absorber. For the allowable absorbed energy value, refer to the specifications section.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) -> "Model No." -> [Instruction Manual].

Space-Saving Type

SSD2

SSG

SSD

CAT

MDC2

SMG

MSD

FC□

Space-Saving Type

SSD2

SSG

SSD

CAT

MDC2

SMG

MSD

FC□

Cylinder Switch

Ending

Cylinder Switch

Ending